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BIOLOGICAL BULLETIN

THE MARINE BIOLOGICAL LABORATORY

TWENTIETH REPORT; FOR THE YEAR 1917

THIRTIETH YEAR

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I. TRUSTEES

EX OFFICIO

FRANK R. LILLIE, *Director*, The University of Chicago.

GILMAN A. DREW, *Assistant Director*, Marine Biological Laboratory.

D. BLAKELY HOAR, *Treasurer*, 161 Devonshire Street, Boston, Mass.

GARY N. CALKINS, *Clerk of the Corporation*, Columbia University.

TO SERVE UNTIL 1920

H. H. DONALDSON.....Wistar Institute of Anatomy and Biology.

M. J. GREENMAN.....Wistar Institute of Anatomy and Biology.

C. W. HARGITT.....Syracuse University.

H. S. JENNINGS.....Johns Hopkins University.

GEORGE LEFEVRE.....University of Missouri, *Secretary of the*

Board.

A. P. MATHEWS.....The University of Chicago.

G. H. PARKER.....Harvard University.

HENRY B. WARD.....University of Illinois.

TO SERVE UNTIL 1919

H. C. BUMPUS.....	Tufts College.
R. A. HARPER.....	Columbia University.
W. A. LOCY.....	Northwestern University.
JACQUES LOEB.....	The Rockefeller Institute for Medical Research.
F. P. MALL.....	Johns Hopkins University.
GEORGE T. MOORE.....	Missouri Botanical Garden, St. Louis.
L. L. NUNN.....	Telluride, Colo.
JOHN C. PHILLIPS.....	299 Berkeley Street, Boston, Mass.

TO SERVE UNTIL 1918

CORNELIA M. CLAPP.....	Mount Holyoke College.
E. G. CONKLIN.....	Princeton University.
ROSS G. HARRISON.....	Yale University.
CAMILLUS G. KIDDER.....	27 William Street, New York City.
M. M. METCALF.....	Oberlin, Ohio.
WILLIAM PATTEN.....	Dartmouth College.
JACOB REIGHARD.....	University of Michigan.
W. B. SCOTT.....	Princeton University.

TO SERVE UNTIL 1917

S. F. CLARKE.....	Williamstown, Mass.
CHARLES A. COOLIDGE....	Ames Building, Boston, Mass.
C. R. CRANE.....	Woods Hole, Mass., <i>President of the Board.</i>
ALFRED G. MAYER.....	Carnegie Institution.
C. E. MCCLUNG.....	University of Pennsylvania.
T. H. MORGAN.....	Columbia University.
ERWIN F. SMITH.....	United States Department of Agriculture.
E. B. WILSON.....	Columbia University.

II. ACT OF INCORPORATION

No. 3170.

COMMONWEALTH OF MASSACHUSETTS

Be It Known, That whereas Alpheus Hyatt, William Sanford Stevens, William T. Sedgwick, Edward G. Gardiner, Susan Minns, Charles Sedgwick Minot, Samuel Wells, William G. Farlow, Anna D. Phillips and B. H. Van Vleck have associated themselves with the intention of forming a Corporation under the name of the Marine Biological Laboratory, for the purpose of establishing and maintaining

a laboratory or station for scientific study and investigation, and a school for instruction in biology and natural history, and have complied with the provisions of the statutes of this Commonwealth in such case made and provided, as appears from the certificate of the President, Treasurer, and Trustees of said Corporation, duly approved by the Commissioner of Corporations, and recorded in this office;

Now, therefore, I, HENRY B. PIERCE, Secretary of the Commonwealth of Massachusetts, *do hereby certify* that said A. Hyatt, W. S. Stevens, W. T. Sedgwick, E. G. Gardiner, S. Minns, C. S. Minot, S. Wells, W. G. Farlow, A. D. Phillips, and B. H. Van Vleck, their associates and successors, are legally organized and established as, and are hereby made, an existing Corporation, under the name of the MARINE BIOLOGICAL LABORATORY, with the powers, rights, and privileges, and subject to the limitations, duties, and restrictions, which by law appertain thereto.

Witness my official signature hereunto subscribed, and the seal of the Commonwealth of Massachusetts hereunto affixed, this twentieth day of March, in the year of our LORD ONE THOUSAND, EIGHT HUNDRED and EIGHTY-EIGHT.

HENRY B. PIERCE,

[SEAL.]

Secretary of the Commonwealth.

III. BY-LAWS OF THE CORPORATION OF THE MARINE BIOLOGICAL LABORATORY

I. The annual meeting of the members shall be held on the second Tuesday in August, at the Laboratory, in Woods Hole, Mass., at 12 o'clock noon, in each year, and at such meeting the members shall choose by ballot a Treasurer and a Clerk, who shall be, *ex officio*, members of the Board of Trustees, and Trustees as hereinafter provided. At the annual meeting to be held in 1897, not more than twenty-four Trustees shall be chosen, who shall be divided into four classes, to serve one, two, three, and four years, respectively, and thereafter not more than eight Trustees shall be chosen annually for the term of four years. These officers shall hold their respective offices until others are chosen and qualified in their stead. The Director and Assistant Director, who shall be chosen by the Trustees, shall also be Trustees, *ex officio*.

II. Special meetings of the members may be called by the Trustees, to be held in Boston or in Woods Hole at such time and place as may be designated.

III. The Clerk shall give notice of meetings of the members by publication in some daily newspaper published in Boston at least fifteen days before such meeting, and in case of a special meeting the notice shall state the purpose for which it is called.

IV. Twenty-five members shall constitute a quorum at any meeting.

V. The Trustees shall have the control and management of the affairs of the Corporation; they shall present a report of its condition at every annual meeting; they shall elect one of their number President and may choose such other officers and agents as they may think best; they may fix the compensation and define the duties of all the officers and agents; and may remove them, or any of them, except those chosen by the members, at any time; they may fill vacancies occurring in any manner in their own number or in any of the offices. They shall from time to time elect members to the Corporation upon such terms and conditions as they may think best.

VI. Meetings of the Trustees shall be called by the President, or by any two Trustees, and the Secretary shall give notice thereof by written or printed notice sent to each Trustee by mail, postpaid. Seven Trustees shall constitute a quorum for the transaction of business. The Board of Trustees shall have power to choose an Executive Committee from their own number, and to delegate to such Committee such of their own powers as they may deem expedient.

VII. The President shall annually appoint two Trustees, who shall constitute a committee on finance, to examine from time to time the books and accounts of the Treasurer, and to audit his accounts at the close of the year. No investments of the funds of the Corporation shall be made by the Treasurer except approved by the finance committee in writing.

VIII. The consent of every Trustee shall be necessary to dissolution of the Marine Biological Laboratory. In case of dissolution, the property shall be given to the Boston Society of Natural History, or some similar public institution, on such terms as may then be agreed upon.

IX. These By-Laws may be altered at any meeting of the Trustees, provided that the notice of such meeting shall state that an alteration of the By-Laws will be acted upon.

X. Any member in good standing may vote at any meeting, either in person or by proxy duly executed.

IV. TREASURER'S REPORT

MARINE BIOLOGICAL LABORATORY BALANCE SHEET,
DECEMBER 31, 1917

<i>Assets</i>			
Cash in bank.....	\$3,222.92.		
Petty cash at Woods Hole.....	200.00	\$	3,422.92
Accounts receivable.....			7,732.81
Investments (Schedule I.).....	\$11,677.88		
Investments, cash (Schedule II.).....	607.71		12,285.59
Inventories (not available).....			
Suspense.....			1.50
Plant account (Schedule III.)			
Land.....	\$122,537.53		
Buildings.....	169,117.44		
Equipment.....	76,727.33		
	\$368,382.30		
Less reserve for depreciation.....	8,881.82		359,500.48
			\$382,943.30
<i>Liabilities and Surplus</i>			
Accounts payable.....		\$	90.58
Notes payable.....	\$3,000.00		
Trust funds.....	9,285.59		12,285.59
Mortgage on Gansett property.....	—		16,409.82
Balancing account.....	\$301,577.72		
(Last report)			
Excess of income.....	2,682.15		
Crane special donation.....	9,247.44		
New property.....	41,250.00		
	\$354,757.31		
Less Woods Hole trust shares.....	600.00		354,157.31
			\$382,943.30

MARINE BIOLOGICAL LABORATORY INCOME AND EXPENSE FOR
YEAR ENDED DECEMBER 31, 1917

	Expense	Income	Loss	Gain
Administrative expense.....	\$ 7,367.87		\$ 7,367.87	
Bar Neck property expense.....	154.79		154.79	
BIOLOGICAL BULLETIN and dues..	2,984.85	\$ 2,730.66	254.19	
Boat department.....	5,186.14		5,186.14	
Carpenter department.....	637.55	123.03	514.52	
Chemical department.....	875.81		875.81	
Dormitory department.....	1,516.69	2,168.77		\$ 652.08
Depreciation.....	7,148.71		7,148.71	

Fish trap.....	830.04	1,441.77		611.73
Gansett property expense.....	939.08		939.08	
Interest on notes payable.....	150.00		150.00	
Instruction.....	3,992.09	4,130.00		137.91
Lectures, philosophical.....	100.00		100.00	
Lectures, evening.....	65.00		65.00	
Library department.....	2,503.62	25.00	2,478.62	
Mess.....	15,394.20	16,835.41		1,441.21
Maintenance, buildings and grounds.....	3,222.66		3,222.66	
New laboratory expense.....	1,847.40		1,847.40	
Newman cottage.....	44.28	112.50		68.22
Pumping station expense.....	286.75		286.75	
Research department.....		3,675.00		3,675.00
Sundry expense and income.....	982.81	2,447.49		1,464.68
Supply department.....	12,002.68	18,815.22		6,812.54
Truck expense.....	1,148.65		1,148.65	
Special dormitory expense Dexter house.....	372.03		372.03	
Total expense.....	\$69,753.70	\$52,504.85	\$32,112.22	\$14,863.37
Total income.....	52,504.85		14,863.37	
Excess of expense.....	\$17,248.85		\$17,248.85	
Bad accounts charged off.....	69.00			
	\$17,317.85			
Contribution by Mr. C. R. Crane.....	20,000.00			
Excess carried to balancing ac- count.....	\$ 2,682.15			

MARINE BIOLOGICAL LABORATORY INVESTMENTS (BOOK VALUES) DECEMBER 31, 1917

Reserve Fund

\$300 Liberty Loan Bonds, 4s.....	\$ 300.00	
\$3,000 American Telephone & Telegraph Company 4s (represented by receipts for same as collateral).....	2,921.25	
\$500 Western Telephone & Telegraph Company, 5s.....	496.88	
6 shares American Smelting & Refining Company, Pre- ferred (receipt on file).....	732.00	
8 shares General Electric Company.....	972.05	
14 shares United Shoe Machinery Company, Preferred.....	393.75	
5 shares Massachusetts Gas Companies, Preferred.....	444.63	\$6,260.56

Lucretia Crocker Fund

\$100 Liberty Loan Bond 4s.....	\$ 100.00	
1/5 of \$1,000 American Telephone & Telegraph Company 4s	194.75	
18 shares Vermont & Massachusetts Railroad Company....	2,416.50	
1 share American Telephone & Telegraph Company.....	125.03	
2 shares General Electric Company.....	240.85	
1 share West End Street Railway Company.....	83.00	3,160.13

Library Fund

\$200 Liberty Loan Bond, 4s.....	200.00	
4/5 of \$1,000 American Telephone & Telegraph Company, 4s	779.00	
3 shares American Telephone & Telegraph Company.....	375.08	
1 share American Smelting & Refining Company, Preferred (receipt on file).....	122.00	
3 shares General Electric Company.....	371.10	
5 shares United Shoe Machinery Company, Preferred.....	140.63	
3 shares Massachusetts Gas Companies, Preferred.....	269.38	2,257.19
Total, Exhibit A.....		\$11,677.88

MARINE BIOLOGICAL LABORATORY CASH RECEIPTS AND PAY-
MENTS ON ACCOUNT OF INVESTMENTS FOR THE YEAR
ENDED DECEMBER 31, 1917

Reserve Fund

Cash on hand January 1, 1917..... \$266.20

Receipts:

Interest on \$3,000 American Telephone & Telegraph Com- pany, 4 per cent. Bonds.....	120.00	
Interest on \$500 Western Telephone & Telegraph Company, 5 per cent. Bonds.....	21.88	
Interest on Bank Balance.....	16.04	
Dividends on 6 shares American Smelting & Refining Com- pany, Preferred.....	42.00	
Dividends on 8 shares General Electric Company.....	64.00	
Dividends on 8 shares General Electric Company Red Cross	8.00	
Dividends on 14 shares United Shoe Machinery Company, Preferred.....	21.00	
Dividends on 5 shares Massachusetts Gas Companies, Pre- ferred.....	20.00	
		<u>\$579.12</u>

Payments:

Purchase of \$300 4 per cent. Liberty Loan Bonds..	\$300.00	
Purchase 1/4 of \$500 Western Telephone & Tele- graph Company 5s.....	124.22	424.22

\$154.90

Lucretia Crocker Fund

Cash on hand January 1, 1917..... \$294.04

Receipts:

Interest on 1/5 of \$1,000 American Telephone & Telegraph Company, 4 per cent. Bonds.....	8.00	
Dividends on 18 shares Vermont & Massachusetts Railway Company.....	108.00	
Dividends on 1 share American Telephone & Telegraph Company.....	8.00	
Dividends on 1 share West End Street Railway Company..	3.50	

Dividends on $2\frac{1}{2}$ shares General Electric Company (part)...	17.00
Dividends on $2\frac{1}{2}$ shares General Electric Company Red Cross	2.00

\$440.54

Sale of 1 share American Telephone & Telegraph Company Rights.....	2.00
Sale of $\frac{1}{2}$ share General Electric Company Stock.....	83.00

\$525.57

Payments:

Purchase of \$100 4 per cent. Liberty Loan Bonds..	\$100.00
Paid for Scholarship.....	50.00

\$375.57

Library Fund

Cash on hand January 1, 1917.....	\$118.30
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Receipts:

Interest on $\frac{4}{5}$ of \$1,000 American Telephone & Telegraph Company 4 per cent. Bonds.....	32.00
--	-------

\$150.30

Interest on $\frac{1}{4}$ of \$500 Western Telephone & Telegraph Company, 5 per cent. Bonds.....	\$ 3.12
--	---------

Dividends on 3 shares American Telephone & Telegraph Co.	24.00
--	-------

Dividends on 1 share American Smelting & Refining Company Preferred.....	7.00
--	------

Dividends on $2\frac{1}{2}$ shares General Electric Company (part)...	23.00
---	-------

Dividends on $2\frac{1}{2}$ shares General Electric Company Red Cross	3.00
---	------

Dividends on 5 shares United Shoe Machinery Company Preferred.....	7.50
--	------

Dividends on 3 shares Massachusetts Gas Companies, Preferred.....	12.00
---	-------

\$229.92

Sale of 3 shares American Telephone & Telegraph Company Rights.....	6.10
---	------

Sale of $\frac{1}{4}$ of \$500 Western Telephone and Telegraph Company, 5s.....	124.22
---	--------

\$360.24

Payments:

Purchase of \$200 4 per cent. Liberty Loan Bonds..	\$200.00
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Purchase of $\frac{1}{2}$ share General Electric Company Stock.....	83.00	283.00	77.24
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Total, Exhibit A..... \$607.71

MARINE BIOLOGICAL LABORATORY SUMMARY OF INVENTORY OF
LAND, BUILDINGS, AND EQUIPMENT FOR PERIOD ENDED
DECEMBER 31, 1917

A. Land, January 1, 1917.....	\$78,406.29
Purchases, 1917—	
Bar Neck property.....	\$30,000.00

Woods Hole trust property.....	7,750.00		
Permanent improvements.....	6,381.24	44,131.24	\$122,537.53
<hr/>			
B. Buildings, January 1, 1917		163,848.88	
Woods Hole boathouse.....	\$3,500.00		
Permanent improvements.....	1,768.56	5,268.56	169,117.44
C. Equipment, January 1, 1917.....		\$73,303.36	
Permanent improvements.....		3,423.97	76,727.33
			<hr/>
			\$368,382.30

MARINE BIOLOGICAL LABORATORY DEPRECIATION RESERVE

<i>Buildings</i>			
Balance, January 1, 1917.....		\$3,276.96	
2 per cent. depreciation, 1917.....		3,312.35	
		<hr/>	
		\$6,589.31	
Less upkeep charges.....		3,092.05	\$3,497.26
<hr/>			
<i>Equipment</i>			
Balance, January 1, 1917.....		\$3,665.16	
5 per cent. depreciation, 1917.....		3,836.36	
		<hr/>	
		\$7,501.52	
Less upkeep charges.....		2,116.96	5,384.56
			<hr/>
Total reserve, Exhibit A.....			\$8,881.82

February 6, 1918.

MR. D. BLAKELY HOAR,
161 DEVONSHIRE STREET,
BOSTON.

Dear Sir: We have completed our audit of the accounts of the Marine Biological Laboratory for the year ended December 31, 1917, as kept both at your office in Boston and at Woods Hole, and report thereon in the accompanying exhibits and schedules:

Exhibit A—Balance-Sheet as of December 31, 1917.

B—Income-and-Expense for year ended December 31, 1917.

Schedule I—Investments (Book Values).

II—Cash Receipts and Payments on account of Investments.

III—Summary of Inventory of Land, Buildings and Equipment.

IV—Depreciation Reserve.

We certify that, subject to the comments herewith, the balance-sheet and income-and-expense statement shown in Exhibits A

and B are in accordance with the books and correct to the best of our knowledge and belief.

Very respectfully,
HARVEY S. CHASE & CO.,
Certified Public Accountants.

V. LIBRARIAN'S REPORT

AUGUST 14, 1917

The continued growth of the library is shown by the following figures:

Total accessions	14,269
Previously noted	12,615
Journals, serials, etc.	334
Books	356
Reprints	964
	<hr/>
	1,654

This shows the greatest gain, as compared with last year, in new books and reprints; about four times as many books and one third more reprints. More individuals have demonstrated interest in the library this year. The following must be noted especially:

Books have been received from authors as follows: Raymond Pearl, A. Petrunkevitch, W. E. Castle, James G. Needham, A. M. Reese, W. B. Scott, J. B. Henderson, Jacques Loeb, R. Goldschmidt, H. S. Pratt, A. S. & P. P. Calvert, A. H. R. Buller and J. E. Peabody.

The University of Chicago Press has given 6 volumes and the Cambridge Press 1 volume.

Miss Mathilde Koch presented 30 bound volumes and a collection of miscellaneous material, not yet catalogued; Dr. Knower 13 bound volumes and a series of reprints; Prof. S. F. Clarke his collection of papers on hydroids consisting of 10 bound volumes and over 300 reprints; Miss Alice W. Wilcox a file of *Science* and one of the *Popular Science Monthly*. Dr. W. B. Cannon sent 40 reprints of his own papers and those of his students; and Dr. Wagner two more installments of duplicates

from the Wisconsin Academy. The Redwood Library, Newport, R. I., sent two boxes of miscellaneous duplicates, from which we have secured several valuable papers.

About 25 volumes and 100 reprints have been secured by the exchange of duplicate material.

The following sets have been completed this year:

Experiment Station Record,
Proc. Zoöl. Soc. France,
Chemical Abstracts.

The assistant librarian has kept a constant watch for opportunities to secure desirable accessions, as was proposed last year when a special fund requested was set aside for this purpose. The good effects of an extensive preliminary study and correspondence to prepare for such enterprise are now seen. Of the \$500 set aside for the purchase of second-hand books and periodicals, \$342.60 has been expended and 251 volumes secured.

Important monographs by Weismann, Garbowski, Blochman and many other bargains were secured; a full set of Wallace and Huxley were added; 33 leather bound volumes of *Popular Science Monthly*, in perfect condition, were bought at 30 cents each.

89 volumes have been added to incomplete files by securing missing parts. In this way substantial progress has been possible toward making up deficiencies. This method of building in lost parts, now feasible for the first time, is as important as extension. From now on desirable bargains are apt to appear in numbers, which will enable us to systematically follow up this campaign. This should be done!

The serials listed below were not on our shelves last year:

Abstracts of Bacteriology,
Journal of Genetics,
Memoirs Zoöl. Soc. France,
Archives Russes d'Anat. d'Hist. et d'Embryol.,
Journ. Russe de Zoölogie, *Revue Zoölogique Russe*,
Chemical Abstracts.
Journal of Heredity.

The last two journals have been secured by exchange with the BIOLOGICAL BULLETIN.

Miscellaneous gifts may be noted as follows: A photograph of

Professor Whitman, and a medallion of Maupas by Dr. Lillie; a panorama of the Scripps Institute for Biological Research was given by Dr. Ritter, and colored by Miss L. M. Wallace; a history and photographs of the Indiana University Biological Station has been prepared by Dr. Fernandus Payne and presented to the laboratory as part of our biological station exhibit—an excellent idea. Miss Dunn has given a map of Woods Hole in 1887, just before the establishment of the laboratory.

The Journal Fund and individual financial support, promised from year to year as explained in the report for last year, will be continued. Owing to exceptional conditions we shall not now make any further statement of subscriptions, beyond an acknowledgment to Drs. Just and Alfred G. Mayer for their contributions of \$10 each. The payment of other amounts promised will enable us to continue the New Journal list. Miss Mary E. Collett gave \$10 for the purchase of books on the biography of scientific men.

Two useful undertakings have been started this year: First, a duplication of text-books and monographs which are used in the classes. The extra set will be of great value to investigators. We shall be glad for assistance here. Second, we have extended the loan department, borrowing from and loaning to other libraries, even in the winter, and permitting students here to take out books not demanded by investigators—volumes on the theoretical aspects of the subject, evolution, biography, heredity, etc., have been in demand by a certain few of the students.

As this has been a rather dull year in library development, in as far as external efforts are concerned, it has been possible to do more work in cataloging. Miss Scott has added 5,000 new cards to the author list started in revised form in 1913; and 15,000 subject cards have been made to start a subject-catalogue to be made as complete as possible. It may take 50,000 cards to make this index representative, but the effort seems well worthwhile, especially because of the lapses in foreign bibliographies. Several investigators have gone over the subject scheme and have made valuable suggestions; we are anxious for all the assistance obtainable in this enterprise.

VI. THE DIRECTOR'S REPORT

JANUARY 1, 1918

TO THE TRUSTEES OF THE MARINE BIOLOGICAL LABORATORY:

Gentlemen: I beg to present herewith a report of the thirtieth session of the Marine Biological Laboratory covering the year 1917. Shortly after our country was forced by Germany into a state of war, the suggestion came from several sources that the use of the buildings and equipment of the Marine Biological Laboratory should be offered to the Navy Department for the duration of the war, owing to the evident strategic position of Woods Hole with reference to naval operations. After some consultation the Director decided to write Secretary Daniels offering to recommend to the Board of Trustees that the property and equipment of the Laboratory should be placed at the disposal of the Navy for the duration of the war. It seemed important that the matter should come before the Secretary of the Navy in such a way that he would not fail to recognize the significance of the scientific work that would be displaced. It was therefore arranged through one of our number that the letter should be presented personally to Secretary Daniels by one of the assistant secretaries of the War Department. This was accordingly done. Secretary Daniels returned his thanks for the offer and stated that on account of the importance of the scientific work being accomplished by the men at the Laboratory, he hesitated to accept it, and that the Navy would not take advantage of the offer except under the greatest military necessity, and would not disturb us during the approaching summer.

In the course of the summer it was decided by the Navy Department to subdivide the coast defence work of the Second Naval District with headquarters at Newport among a number of sub-districts or sections and to locate the headquarters of subdistrict A at Woods Hole. H. F. Emmons was placed in command of this section. In the early part of the summer the Director of the Laboratory had several conversations with Commander Emmons which resulted in an agreement to furnish board and lodging to as many members of his corps as was possible up to

September 15, and to recommend certain arrangements for the winter to our Board of Trustees meeting on August 14. At this meeting the Director reported the negotiations to the Board, which thereupon *voted* "that the principle underlying the correspondence between Commander Emmons and the Director is approved by the Board of Trustees and that the details regarding use by the Navy of the Laboratory buildings and equipment be referred to the Director and the Assistant Director with power."

In accordance with this vote a contract was drawn up between the Marine Biological Laboratory and the United States of America for the Navy Department, leasing without compensation the mess hall, laundry, kitchen and store house, the home-*stead*, the lecture hall building, the yacht club and the Dexter House together with all necessary equipment from September 15, 1917, to May 15, 1918; inventories were attached. It was agreed that there should be compensation for all wear and tear of a damaging character, and that the Navy Department should pay for insurance and all expenses of occupancy. Provision was also made for supervision by the Laboratory of all alterations in buildings, restoration of original conditions as desired, and retention of heating appliances by the Laboratory.

In accordance with this contract the buildings named, with the exception of the Dexter House, which was not needed, are being occupied by the Navy Department.

The spirit of the dealings has been that we should render the greatest possible service to the Navy without prejudice to our work of investigation and instruction. With the expiration of the contract next May the question will arise how to correlate the needs of the Navy with our own demands for the session of 1918. It is clear that unforeseen circumstances may arise requiring emergency action, and it is therefore suggested that the Board should leave adequate discretion to the Directors for dealing with the situation up to the time of its next meeting.

We are proceeding with the usual arrangements for the next summer session believing that it is the duty of scientific men not called directly to war service to maintain their scientific activities. It was expected that the war would exert an unfavorable effect upon the Laboratory; to a certain extent this expectation has

been realized, though not to the extent that was anticipated. The total attendance of investigators and students at the Laboratory since 1913 has been: 1913, 191; 1914, 218; 1915, 242; 1916, 231; 1917, 212. If 1916 is used for reference the reduction in attendance was about 8 per cent., with reference to 1915 about 12½ per cent.; only about 3 per cent. less than 1914, and over 10 per cent. more than 1913. The decline since 1915 must be attributed primarily to war conditions. It must be anticipated that the decline will continue for the duration of the war.

Analyzing the figures of attendance a little farther the attendance of investigators was 129, the same as 1914 and 1916, but 8 less than 1915; the attendance of students was 83 or 19 less than in 1916. Many of the young men, who registered earlier in the year for courses, withdrew on account of military duties; the decrease of attendance of men in courses was 17, of women 2.

ATTENDANCE OF MEN AND WOMEN IN COURSES

	1917.		1916.		1915.		1914.	
	Men.	Women.	Men.	Women.	Men.	Women.	Men.	Women.
I. Zoölogy.....	9	37	12	38	20	27	16	27
II. Embryology.....	6	10	14	12	18	19	10	11
III. Physiology.....	6	7	8	6	14	1	5	5
IV. Botany.....	3	5	7	5	2	4	10	5
Total.....	24	59	41	61	54	51	41	48

The number of subscribing institutions was 38 in 1917 as against 40 in 1916. The receipts from such institutions were \$4,750 in 1917 as against \$4,900 in 1916. The total receipts on account of tuition and investigation were \$7,850 in 1917, \$8,625 in 1916.

The charge for board at the mess was raised for the first time in thirty years on account of the increased cost of supplies; members of the Laboratory were charged \$5.50 per week instead of \$5.00. The rate was raised for those not members of the Laboratory to \$8.00 per week. Contracts for all staple supplies were made in the winter. The net results were entirely satisfactory to the members and to the Laboratory and the season closed with a net surplus of \$1,441.21, as compared with a loss of \$101.52 last year. There will thus be a sufficient sum for

repairs and replacements for the coming season. Part of the better results for this year must be attributed to the war garden which occupied most of our vacant land and supplied a large quantity of fresh vegetables, and part to a larger percentage of boarders who paid the higher rate and remained later in the season, including members of the Woods Hole Naval Section.

In accordance with the vote of the Board of Trustees on December 29, 1916, the executive committee adopted regulations with reference to the development of the Gansett property and to sales and leaseholds of parts thereof. Roads have been surveyed through the property and partly built; about 1,000 feet of six-inch water main has been laid; a provisional plan of subdivision of the property into 63 lots has been adopted, prices fixed, and part of it has been accurately surveyed for registration with the land court of Massachusetts, in accordance with the blue print submitted. The sale of five lots to three parties has been negotiated for the sum of \$5,235. It is also proposed to reserve from sale for the present certain parts of the property for possible construction by the Laboratory of cottages for rent. Mr. Crane has furnished \$5,613.56 for this work of development. It is hoped that in the future the receipts from sales and leaseholds will carry the property completely.

In connection with the future development of this property, Mr. Crane has also purchased the Newman lot 100 \times 60 feet with bungalow for the sum of \$2,000 and presented it to the Laboratory.

We are farther and most deeply grateful to Mr. Crane for presentation to the Laboratory of the harbor property known as the Bar Neck Wharf, comprising 54,624.4 square feet with 355 feet of harbor frontage. This is a direct continuation of our present frontage on the harbor, and for Laboratory purposes undoubtedly the most valuable piece of real estate in Woods Hole. This property has been conveyed to the Laboratory and was accepted by the Board of Trustees at the summer meeting (1917) subject to a lease of forty years to the Bar Neck Corporation, with the provision, however, that they may be dispossessed at any time by vote of our Board of Trustees that the Laboratory requires the use of the property.

In accordance with the vote of the Board of Trustees last August a committee consisting of H. C. Bumpus, A. P. Mathews and F. R. Lillie has approved a plan for a tablet inscription in Bronze in memory of our first Director and has let the contract to Miss Frances Grimes of New York. It is hoped to place this in the vestibule of our new building before next summer.

Lists of the staff, of investigators and students, a tabular view of attendance, of subscribing institutions, of evening lectures and of members of the corporation are appended as parts of this report.

I. THE STAFF

1917

FRANK R. LILLIE, DIRECTOR,
Professor of Embryology, and Chairman of the Department of
Zoölogy, The University of Chicago.

GILMAN A. DREW, ASSISTANT DIRECTOR,
Marine Biological Laboratory.

ZOÖLOGY

I. INVESTIGATION

- GARY N. CALKINS.....Professor of Protozoölogy, Columbia University.
- E. G. CONKLIN.....Professor of Zoölogy, Princeton University.
- GILMAN A. DREW.....Assistant Director, Marine Biological Laboratory.
- GEORGE LEFEVRE.....Professor of Zoölogy, The University of Missouri.
- FRANK R. LILLIE.....Professor of Embryology, The University of Chicago.
- C. E. MCCLUNG.....Professor of Zoölogy, University of Pennsylvania.
- T. H. MORGAN.....Professor of Experimental Zoölogy, Columbia University.
- E. B. WILSON.....Professor of Zoölogy, Columbia University.

II. INSTRUCTION

- CASWELL GRAVE.....Associate Professor of Zoölogy, Johns Hopkins University.
- W. C. ALLEE.....Professor of Biology, Lake Forest College.

ROBERT HALL BOWEN....Graduate Student, Columbia University.
W. J. KOSTIR.....Instructor in Zoölogy and Entomology,
Ohio State University.
FRANCIS M. ROOT.....Bruce Fellow, Johns Hopkins University.
W. H. TALIAFERRO.....Graduate Student, Johns Hopkins Uni-
versity.
RAYMOND BINFORD.....Professor of Zoölogy, Earlham College.

EMBRYOLOGY

I. INVESTIGATION (See Zoölogy)

II. INSTRUCTION

WILLIAM E. KELLICOTT... Professor of Biology, Goucher College.
ROBERT A. BUDINGTON ... Professor of Zoölogy, Oberlin College.
CHARLES PACKARD..... Instructor in Zoölogy, Columbia University.
CHARLES G. ROGERS..... Professor of Zoölogy, Oberlin College.

PHYSIOLOGY

I. INVESTIGATION

ALBERT P. MATHEWS Professor of Physiological Chemistry, The
University of Chicago.

RALPH S. LILLIE Professor of Biology, Clark University.

HAROLD C. BRADLEY Assistant Professor of Physiological Chem-
istry, University of Wisconsin.

II. INSTRUCTION

RALPH S. LILLIE.....Professor of Biology, Clark University.
WALTER E. GARREY.....Professor of Physiology, Tulane University.
FRANK P. KNOWLTON.....Professor of Physiology, Syracuse University.
A. R. MOORE.....Professor of Physiology, Rutgers College.

PHILOSOPHICAL ASPECTS OF BIOLOGY AND ALLIED SCIENCES

LECTURES

EDWARD G. SPAULDING....Professor of Philosophy, Princeton University.

BOTANY

GEORGE T. MOORE.....Director, Missouri Botanical Garden and
Professor of Botany, Washington Uni-
versity.

- IVEY F. LEWIS.....Professor of Biology, University of Virginia.
 CARL S. HOAR.....Instructor in charge of Botany, Williams College.
 W. D. HOYT.....Associate Professor of Biology, Washington and Lee University.

LIBRARY

- H. MCE. KNOWER.....Professor of Anatomy, University of Cincinnati, Librarian.
 MARY E. SCOTT.....Assistant Librarian.

CHEMICAL SUPPLIES

- OLIVER S. STRONG.....Assistant Professor of Neurology, College of Physicians and Surgeons, New York City, Chemist.

SUPPLY DEPARTMENT

- G. M. GRAY.....Curator. A. M. HILTON.....Collector.
 JOHN J. VEEDER.....Captain. F. G. GUSTAFSON...Collector in
 E. M. LEWIS.....Engineer. Botany.
 A. W. LEATHERS.....Collector. EDNA M. WELLS...Clerk.
 F. M. MACNAUGHT.....Business Manager.
 HERBERT A. HILTON.....Superintendent of Buildings and Grounds.

2. INVESTIGATORS AND STUDENTS

1917

ZOOLOGY**Independent Investigators**

- ADDISON, WILLIAM H. F., Assistant Professor of Normal Histology and Embryology, University of Pennsylvania.
 ALLEE, WARDER C., Professor of Biology, Lake Forest College.
 ALLEN, EZRA, University of Pennsylvania.
 ALTENBURG, EDGAR, Instructor in Biology, Rice Institute.
 BIGELOW, ROBERT P., Associate Professor of Zoölogy, Massachusetts Institute of Technology.
 BINFORD, RAYMOND, Professor of Zoölogy, Earlham College.
 BRIDGES, CALVIN B., Research Assistant, Carnegie Institution.
 BUDINGTON, ROBERT A., Professor of Zoölogy, Oberlin College.
 CALKINS, GARY N., Professor of Protozoölogy, Columbia University.
 CAROTHERS, E. ELEANOR, Assistant in Zoölogy, University of Pennsylvania.
 CARVER, GAIL L., Professor of Biology, Mercer University.
 CHIDESTER, FLOYD E., Professor of Zoölogy, Rutgers College.

- CLAPP, CORNELIA M., Professor Emeritus, Mount Holyoke College.
CONKLIN, EDWIN G., Professor of Biology, Princeton University.
COPELAND, MANTON, Professor of Biology, Bowdoin College.
DANCHAKOFF, MME. VERA, Assistant Professor in Anatomy, Columbia University.
DONALDSON, HENRY H., Professor of Neurology, Wistar Institute.
DREW, GILMAN A., Assistant Director, Marine Biological Laboratory, Woods Hole.
FORBES, WILLIAM T. M., 23 Trowbridge Road, Worcester, Mass.
GOLDFARB, A. J., Assistant Professor of Biology, College of the City of New York.
GOLDSCHMIDT, RICHARD, Kaiser Wilhelm Institut für Biologie.
GOODRICH, HUBERT B., Associate Professor of Zoölogy, Wesleyan University.
GOULD, HARLEY N., Assistant Professor, West Virginia University Medical School.
GRAVE, CASWELL, Associate Professor of Zoölogy, Johns Hopkins University.
GREGORY, LOUISE H., Assistant Professor of Zoölogy, Barnard College.
GROSS, ALFRED O., Assistant Professor of Zoölogy, Bowdoin College.
HANCE, ROBERT T., Assistant in Zoölogy, University of Pennsylvania.
HOGUE, MARY J., Instructor in Zoölogy, Wellesley College.
KELLICOTT, WILLIAM E., Professor of Biology, Goucher College.
KNOWER, HENRY McE., Professor of Anatomy, University of Cincinnati.
LILLIE, FRANK R., Chairman Department of Zoölogy, University of Chicago.
McCLUNG, CLARENCE E., Director of the Zoölogical Laboratory, University of Pennsylvania.
MALONE, EDWARD F., Associate Professor of Antaomy, University of Cincinnati.
MAST, SAMUEL O., Associate Professor of Zoölogy, Johns Hopkins University.
METZ, CHARLES W., Staff Member, Carnegie Institution of Washington.
MINER, ROY W., Associate Curator in Invertebrate Zoölogy, American Museum of Natural History.
MORGAN, THOMAS H., Professor of Experimental Zoölogy, Columbia University.
MULLER, HERMANN J., Instructor, Rice Institute.
NEAL, HERBERT V., Professor of Zoölogy, Tufts College.
OSBURN, RAYMOND C., Professor of Zoölogy, Ohio State University.
PACKARD, CHARLES, Instructor in Zoölogy, Columbia University.
PATTEN, WILLIAM, Professor of Biology, Dartmouth College.
PAYNE, FERNANDUS, Associate Professor of Zoölogy, Indiana University.
PEEBLES, FLORENCE, Professor of Biology, Sophie Newcomb Memorial College.
PLOUGH, HAROLD H., Instructor in Zoölogy, Amherst College.
RICE, EDWARD L., Professor of Zoölogy, Ohio Wesleyan University.
RICHARDS, A., Professor of Zoölogy, Wabash College.
ROGERS, CHARLES G., Professor of Comparative Physiology, Oberlin College.
ROOT, FRANCIS M., Instructor in Zoölogy, Johns Hopkins University.
SMITH, LUCY W., Instructor in Zoölogy, Mount Holyoke College.
SPAULDING, EDWARD G., Professor of Philosophy, Princeton University.
STOCKARD, CHARLES R., Professor of Anatomy, Cornell University.
STRONG, OLIVER S., Assistant Professor of Neurology, Columbia University.
STURTEVANT, ALFRED H., Research Assistant, Columbia University.
WALLACE, EDITH M., Research Assistant, Columbia University.
WARREN, HOWARD C., Professor of Psychology, Princeton University.
WEINSTEIN, ALEXANDER, Assistant in Zoölogy, Columbia University.
WIEMAN, HARRY L., Head of Dept. of Zoölogy, University of Cincinnati.
WILSON, CHARLIE W., Head of Biology Department, Mills College.

WILSON, EDMUND B., Professor of Zoölogy, Columbia University.
 WOODWARD, ALVALYN E., Instructor, Simmons College.
 YOUNG, ROBERT T., Professor of Zoölogy, University of North Dakota.
 ZELENY, CHARLES, Professor of Zoölogy, University of Illinois.

Beginning Investigators

BLAKE, IRVING H., Instructor in Zoölogy, Syracuse University.
 BOWEN, ROBERT H., Instructor in Invertebrate Zoölogy, Columbia University.
 BROWN, ALBERT M., Columbia University.
 CHARLTON, HARRY H., North Billerica, Mass.
 DAVIES, I. J., Technician, Rice Institute.
 FERNALD, HELEN E., Research Assistant, Columbia University.
 GUNTHER, MAUDE C., Eastern High School, Washington, D. C.
 HAYDEN, MARGARET A., 400 West 118th St., New York City.
 HOPKINS, HOYT S., Student, Johns Hopkins University.
 KOSTIR, W. J., Instructor in Zoölogy, Ohio State University.
 LYNCH, CLARA J., Brooks Hall, New York City.
 MAHR, ERNEST F., 227 Clarendon St., Syracuse, N. Y.
 MONTGOMERY, PRISCILLA B., University of Pennsylvania.
 MUDD, STUART, Student, Washington University Medical School.
 OLSEN, I. E., American Museum of Natural History, New York City.
 PARMENTER, CHARLES L., Assistant, University of Pennsylvania.
 SAFIR, SHELLEY R., Teacher in Stuyvesant High School, New York City.
 SHIMOTORI, SHOW, American Museum of Natural History.
 STARK, MARY B., Graduate Student, Columbia University.
 STARR, ISAAC, JR., University of Pennsylvania.
 STRINGER, CAROLINE E., Head of Department of Natural Science, Omaha High School.
 SWINGLE, WILBUR W., Instructor in Zoölogy, University of Kansas.
 TALIAFERRO, WILLIAM H., University, Va.
 THIEL, GEORGE A., Teaching Fellow, University of Minnesota.

PHYSIOLOGY

Independent Investigators

ADLER, ISAAC, 401 West End Ave., New York City.
 CHAMBERS, ROBERT, Instructor in Anatomy, Cornell University Medical College.
 DUESBERG, JULES, Research Associate, Carnegie Institution.
 EDWARDS, DAYTON J., Instructor in Physiology, College of City of New York.
 GARREY, WALTER E., Professor of Physiology, Tulane University.
 HARVEY, E. NEWTON, Assistant Professor of Physiology, Princeton University.
 HARVEY, MRS. E. NEWTON, Princeton, N. J.
 HOSKINS, ELMER R., Instructor in Anatomy, New York University.
 HOSKINS, MRS. ELMER R., Instructor in Histology, New York University.
 HYDE, IDA H., Professor of Physiology, University of Kansas.
 JUST, ERNEST E., Professor of Physiology, Harvard University.
 KNOWLTON, FRANK P., Professor of Physiology, Syracuse University.
 LILLIE, RALPH S., Professor of Biology, Clark University.
 LOEB, JACQUES, Head of Department of Experimental Biology, Rockefeller Institute for Medical Research.
 LYON, ELIAS P., Professor of Physiology, University of Minnesota.

- MATHEWS, A. P., Professor of Physiological Chemistry, University of Chicago.
MOORE, ARTHUR R., Professor of Physiology, Rutgers College.
MORGULIS, SERGIUS, Professor of Physiology, Creighton University, College of Medicine.
NORTHROP, JOHN H., Assistant, Rockefeller Institute for Medical Research.
PARKER, GEORGE H., Professor of Zoölogy, Harvard University.
PERLZWEIG, WILLIAM A., Assistant Professor of Biochemistry, Creighton University, College of Medicine.
REDFIELD, ALFRED C., Teaching Fellow in Physiology, Harvard Medical School.
RUDISCH, JULIUS, Consulting Physician, Mount Sinai Hospital, New York.

Beginning Investigators

- ADLER, FRANCIS H., Student of Medicine, University of Pennsylvania.
BRIGHT, ELIZABETH M., Technician, University of Maine.
FRIZZELL, TOM P., Fellow in Biology, Rice Institute.
IRWIN, MARIAN, Graduate Student, Radcliffe College.
MOORE, MRS. ARTHUR R., Graduate Student, Rutgers College.
YOUNG, ELRID G., Demonstrator in Chemistry, McGill University.

BOTANY

Independent Investigators

- DAVIS, BRADLEY M., Professor of Botany, University of Pennsylvania.
HOAR, CARL S., Instructor in Biology, Williams College.
HOYT, WILLIAM D., Associate Professor of Biology, Washington and Lee University.
LEWIS, IVEY F., Professor of Biology, University of Virginia.
LYMAN, GEORGE R., Department of Agriculture, Washington, D. C.
MOORE, GEORGE T., Director, Missouri Botanical Garden, St. Louis.
OSTERHOUT, W. J. V., Professor of Botany, Harvard University.
STOKEY, ALMA G., Professor of Botany, Mount Holyoke College.

Beginning Investigators

- FURBER, JANE M., 769 Washington St., Brookline, Mass.
HAAS, ALBERT R., Harvard University.
RABER, ORAN L., Harvard University.
STOCKHAUSEN, REGINA E., Assistant in Botany, Mount Holyoke College.
YAMPOLSKY, CECIL, Professor of Biology, Toledo University.

STUDENTS

1917

BOTANY

- BISHOP, DELLA, Teacher, The Liggett School.
CLELAND, RALPH E., Graduate Student, University of Pennsylvania.
HENDERSON, MARGARET W., University of Pennsylvania.
KINNEAR, EUNICE A., Student, Oberlin College.
RUSSELL, ALICE M., Graduate Student, University of Pennsylvania.
TAYLOR, WILLIAM RANDOLPH, Fellow in Botany, University of Pennsylvania.
THOMAS, RUTH E., Teacher, East Boston High School, Boston, Mass.
WHITE, RICHARD P., Student, Dartmouth College.

EMBRYOLOGY

ALLEN, HELEN J., Graduate Student, University of Cincinnati.
ARMSTRONG, NELLIE P., Student, Knox College.
BRISTOL, ELISABETH, Vassar College.
CLARK, DANA V., Knox College.
CARLSON, C. O., Professor of Biology, Doane College.
DIETRICH, BERTHA K., Teacher, Bushwick High School.
DONOVAN, STEPHEN M., Professor of Biology, St. Bonaventure's College.
GOSTENHOFER, DOROTHY M., Student, Columbia University.
HERRICK, RUTH, University of Chicago.
HINRICHS, MARIE A., Lake Forest College.
INGRAHAM, HELEN, Student, Knox College.
MCKENZIE, ROBERT A., Student, Rutgers College.
PROCTOR, HARRIET T., Student, Radcliffe College.
STOLL, NORMAN R., Graduate Assistant, University of Michigan.
WARREN, SHIELDS, Student, Boston University.
WHITING, HELEN B., Instructor in Biology, Brown University.

PHYSIOLOGY

ASH, RACHEL, 4176 Leidy Ave., Philadelphia, Pa.
ASHMAN, RICHARD, Assistant in Zoölogy, Rutgers College.
BANUS, MARIO G., Rockefeller Institute.
BEYER, HENRY G., U. S. Navy, Retired.
GREENLEAF, WALTER J., Princeton University.
GRIFFITH, FRED R., JR., Associate Professor of Biology, Southern Methodist University.
HERMAN, WILLIAM, Student, Harvard Medical School.
INGALS, MARY G., Student, University of Chicago.
KNIGHT, MARY S., Student, University of Cincinnati.
LITTELL, ELIZABETH D., Head of Science Dept., Brearley School, New York City.
MARKS, PAULINE C., Radcliffe College.
STOKES, FRANCES B., Swarthmore College.
WEINSTEIN, FLORENCE, Student, Barnard College.

ZOÖLOGY

ABT, ARTHUR F., Student, University of Chicago.
ARNOLD, EMILIE E., Western Reserve University.
BOURQUIN, HELEN, Agnes Scott College.
CHAMPLIN, ARETA L., Student, Mt. Holyoke College.
CLARK, MARTHA L., Student, Doane College.
COLEMAN, LAWRENCE V., Assistant in Peabody Museum, Yale University.
COLLINS, ANNA M., Student, Butler College.
CONKLIN, MARY, Student, Goucher College.
CROCKER, JOSEPHINE, Hunter College.
DANFORTH, RALPH E., East Jaffrey, N. H.
DAVY, MARY W., Goucher College.
ELLIOTT, MARGARET E., Student, Knox College.
FISKE, MILDRED, Laboratory Assistant at Wellesley College.
GIBBS, GRACE M., University of Maine.

GRAVES, LUCY E., Goucher College.
 GREENLEAF, WILLIAM E., Graduate Student, Yale University.
 GUTHRIE, MARY J., Assistant in Zoölogy, University of Missouri.
 HARPER, ISABEL W., 36 Mercer St., Princeton, N. J.
 HARVEY, LOIS F., Student, Oberlin College.
 HIBBARD, HOPE, Assistant in Zoölogy, University of Missouri.
 HOAGLAND, RUTH A., Assistant in Zoölogy, Vassar College.
 HOSFORD, CAROLINE A., Doane College.
 HUMPHREYS, MILDRED J., Student, Mount Holyoke College.
 JACOBS, HELEN G., Student, Simmons College.
 KRAFT, NETTIE E. H., Student, Carleton College.
 MERRITT, OLIVE E., Hunter College.
 MILLER, JEANNETTE, Student, Doane College.
 MOORE, EMILY L., Student, Goucher College.
 NAIRNE, MATHILDE A., Student, Sophie Newcomb College.
 NICHOLS, HOPE, Student, Mount Holyoke College.
 PARKER, MARY F., Student, Simmons College.
 PICKELS, ESTHER E., Laboratory Assistant, Mount Holyoke College.
 PIERCE, RUTH W., Student, Oberlin College.
 RAYMOND, MARY, Sophie Newcomb College.
 ROBBINS, HARRIET L., Teacher of Biology, Knox College.
 ROEHM, HILDA E., Student, Wellesley College.
 SCHILLER, ESTHER B., Student, Goucher College.
 SEIBERT, FLORENCE B., Student, Goucher College.
 SPONG, PHILIP, Student, Butler College.
 STEWART, DOROTHY G., Assistant in Department of Zoölogy, Mount Holyoke College.
 STOCKMAN, CHARLES C., 2D, Student, Massachusetts Institute of Technology.
 STONE, LEON S., Yale University.
 TAPPAN, VIVIAN, Student, Barnard College.
 THORNDIKE, AUGUSTUS, JR., Student, Harvard University.
 VRABEC, SETTI L., Student, Mount Holyoke College.
 WILSON, IRA T., Student, Lake Forest University.

3. TABULAR VIEW OF ATTENDANCE

	1913	1914	1915	1916	1917
INVESTIGATORS—Total.	122	129	137	129	129
Independent:					
Zoölogy	58	62	69	70	63
Physiology	17	22	20	23	23
Botany	11	10	6	7	8
Under Instruction:					
Zoölogy	21	31	36	25	24
Physiology	7	1	4	3	6
Botany	7	3	2	1	5

STUDENTS—Total.....	69	89	105	102	83
Zoölogy.....	33	43	47	50	46
Embryology.....	22	21	37	26	16
Physiology.....	8	10	15	14	13
Botany.....	7	15	6	12	8
TOTAL ATTENDANCE.....	191	218	242	231	212

INSTITUTIONS REPRESENTED—

Total.....	80	77	79	73	77
By investigators.....	50	51	59	51	60
By students.....	41	47	42	45	36

SCHOOLS AND ACADEMIES REPRESENTED.

By investigators.....	3	1	3	0	2
By students.....	6	5	9	3	5

SUBSCRIBING INSTITUTIONS—1917

BARNARD COLLEGE
 BOWDOIN COLLEGE
 CARLETON COLLEGE
 COLLEGE OF PHYSICIANS AND SURGEONS
 COLUMBIA UNIVERSITY
 CREIGHTON UNIVERSITY
 DARTMOUTH COLLEGE
 DOANE COLLEGE
 ELSE SERINGHAUS SCHOLARSHIP, HUNTER COLLEGE, New York City
 GOUCHER COLLEGE
 HARVARD UNIVERSITY
 JOHNS HOPKINS UNIVERSITY
 KAISER WILHELM INSTITUT FÜR BIOLOGIE
 LAKE FOREST COLLEGE
 LUCRETIA CROCKER SCHOLARSHIP
 MOUNT HOLYOKE COLLEGE
 OBERLIN COLLEGE
 PRINCETON UNIVERSITY, DEPT. OF BIOLOGY
 PRINCETON UNIVERSITY, DEPT. OF PSYCHOLOGY
 RADCLIFFE COLLEGE
 RICE INSTITUTE
 ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH
 RUTGERS COLLEGE

SIMMONS COLLEGE

SMITH COLLEGE

SOPHIE NEWCOMB COLLEGE

UNIVERSITY OF CHICAGO

UNIVERSITY OF CINCINNATI

UNIVERSITY OF ILLINOIS

UNIVERSITY OF KANSAS

UNIVERSITY OF MICHIGAN

UNIVERSITY OF MISSOURI

UNIVERSITY OF PENNSYLVANIA

UNIVERSITY OF WISCONSIN

VASSAR COLLEGE

WELLESLEY COLLEGE

WISTAR INSTITUTE OF ANATOMY AND BIOLOGY

YALE UNIVERSITY

5. EVENING LECTURES, 1917

Tuesday, July 3,

PROF. G. H. PARKER....."New Experimental Evidences
on the Question of Hearing
in Fishes."

Friday, July 6

PROF. T. H. MORGAN....."The Factorial Treatment in
Heredity."

Wednesday, July 11,

DR. G. H. CLOWES....."Surface Tension and Proto-
plasmic Permeability."

Friday, July 13,

PROF. WILLIAM PATTEN....."The Creative Power of Co-
operation."

Tuesday, July 17,

DR. CHARLES R. STOCKARD....."Modification of Germ Cells by
Alcohol."

Friday, July 20,

DR. GEORGE T. MOORE....."Some Phases of Applied
Botany."

Tuesday, July 24,

DR. GILMAN A. DREW....."The Spermatophore of the
Squid."

Friday, July 27,

DR. C. E. McCLUNG....."Reactions of Cellular Struc-
tures to Physical Agents."

Tuesday, July 31,

PROF. HOWARD C. WARREN....."The Investigation of Human Intelligence."

Friday, Aug. 3,

PROF. H. H. DONALDSON....."Post-Natal Growth of the Mammalian Nervous System."

Tuesday, Aug. 7,

DR. H. LANG....."Six Years in the Belgian Congo with Remarks on the Natural History and the Natives."

Friday, Aug. 10,

MR. WILLIAM LYMAN UNDERWOOD."A Strange Story of the North Woods."

6. MEMBERS OF THE CORPORATION

AUGUST, 1917

ABBOTT, PROF. J. F., Washington University, St. Louis, Mo.

ADDISON, DR. W. H. F., University of Pennsylvania Medical School, Philadelphia, Pa.

ALLEE, DR. W. C., Lake Forest College, Lake Forest, Ill.

ALLEN, PROF. EZRA, 125 Thompson Ave., Ardmore, Pa.

ALLYN, MISS HARRIET M., Hackett Medical College, Canton, China.

ALSBURG, DR. C. S., U. S. Dept. of Agriculture, Washington, D. C.

BAITSELL, DR. GEORGE A., Yale University, New Haven, Conn.

BAKER, MRS. L. D., 123 Chiswick Road, Boston, Mass.

BAKER, DR. E. H., 154 W. Randolph St., Chicago, Ill.

BANCROFT, PROF. F. W., Aloha Farm, Concord, Cal.

BARDEEN, PROF. C. R., University of Wisconsin, Madison, Wis.

BECKWITH, MISS CORA J., Vassar College, Poughkeepsie, N. Y.

BEHRE, MISS ELINOR H., University of Chicago, Chicago, Ill.

BEYER, DR. H. G., Stoneleigh Court, Washington, D. C.

BIGELOW, PROF. M. A., Teachers College, Columbia University, New York City.

BIGELOW, PROF. R. P., Mass. Institute of Technology, Cambridge, Mass.

- BINFORD, DR. RAYMOND, Earlham College, Richmond, Ind.
BLAKE, DR. IRVING H., Syracuse University, Syracuse, N. Y.
BLAKESLEE, PROF. A. F., Carnegie Station, Cold Spring Harbor,
Lond Island.
BORING, MISS ALICE M., University of Maine, Orono, Maine.
BOX, MISS CORA MAY, University of Cincinnati, Cincinnati,
Ohio.
BRADLEY, DR. HAROLD C., University of Wisconsin, Madison,
Wis.
BRUMFIEL, MR. DANIEL M., University of Iowa, Iowa City, Iowa.
BUCKINGHAM, MISS EDITH N., 342 Marlboro St., Boston, Mass.
BUDINGTON, PROF. R. A., Oberlin College, Oberlin, Ohio.
BUMPUS, DR. H. C., Tufts College, Tufts College, Mass.
BYRNES, DR. ESTHER F., 193 Jefferson Ave., Brooklyn, N. Y.
- CALKINS, PROF. GARY N., Columbia University, New York City,
N. Y.
CALVERT, PROF. PHILIP P., University of Pennsylvania, Phila-
delphia, Pa.
CARLSON, PROF. A. J., University of Chicago, Chicago, Ill.
CAROTHERS, MISS ELEANOR, University of Pennsylvania, Phila-
delphia, Pa.
CARVER, PROF. GAIL L., Mercer University, Macon, Ga.
CARY, DR. L. R., Princeton University, Princeton, N. J.
CASTEEL, DR. D. B., University of Texas, Austin, Texas.
CATTELL, PROF. J. McKEEN, Garrison-on-Hudson, N. Y.
CATTELL, MR. McKEEN, Harvard Medical School, Boston, Mass.
CHAMBERS, DR. ROBERT, JR., Cornell University Medical Col-
lege, New York City, N. Y.
CHESTER, PROF. WEBSTER, Colby College, Waterville, Maine.
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